Critical Review Form
Prognosis

Medical clearance of the psychiatric patient in the emergency department. J Emerg Med. 2012 Nov;43(5):866-70.

Objectives: **"To determine if routine screening laboratory studies performed in the ED on patients with a psychiatric chief complaint would alter ED medical clearance (evaluation, management or disposition) of such patients." (p. 866)**

Methods: **In this retrospective review, the charts of consecutive patients admitted to the inpatient adult psychiatry service at the Medical College of Georgia in Augusta, GA from February through October of 2007 were evaluated for inclusion. Of 519 admissions, 17 were excluded due to either direct admission to the psychiatry unit without ED evaluation (n = 2) or due to an incomplete set of laboratory tests ordered (n = 15), leaving 502 patients in the final analysis. Routine laboratory testing included CBC, CMP, thyroid studies, B12, folate, urine drug screen, and a urine pregnancy test for females.**

Charts were reviewed for all data, including laboratory results. In cases where laboratory results were abnormal, the investigators subjectively determined whether the abnormality would have changed ED medical clearance by requiring extended observation, treatment, intervention, further studies, or a change in disposition. In questionable cases, both investigators reviewed the cases and came to a consensus agreement. Out of 502 cases, the urine drug screen was abnormal in 221 cases, anemia was present in 136 cases, and hyperglycemia was present in 139 cases. Only 50 patients had entirely normal laboratory studies.

Guide		Comments
I.	**Are the results valid?**	
A.	**Was the sample of patients representative?** *In other words, how were subjects selected and did they pass through some sort of "filtering" system which could bias your results based on a non-representative sample. Also, were objective criteria used to diagnose the patients with the disorder?*	No. These were patients admitted to an inpatient psychiatry service. This therefore is not representative of all patients presenting to the ED for psychiatric evaluation, or all patients requiring psychiatric consultation for consideration of admission. These are patients with a likely more severe psychiatric condition requiring inpatient admission. Also, violent patients requiring inpatient psychiatric admission were not included as they were typically transferred to an outside facility.
B.	**Were the patients sufficiently homogeneous with respect to prognostic risk?**	Uncertain. The authors do not provide information regarding patient demographics, including age or the presence of medical comorbidities. Additionally, they did not evaluate which laboratory tests were ordered by

	In other words, did all patients share a similar risk from during the study period or was one group expected to begin with a higher morbidity or mortality risk?	protocol and which were ordered out of concerns based on abnormal findings from the history or physical exam.
C.	**Was follow-up sufficiently complete?** *In other words, were the investigators able to follow-up on subjects as planned or were a significant number lost to follow-up?*	Yes. Out of 519 eligible patients, only 15 were excluded due to incomplete laboratory testing (2.9%).
D.	**Were objective and unbiased outcome criteria used?** Investigators should clearly specify and define their target outcomes before the study and whenever possible they should base their criteria on objective measures.	No. The outcome of interest was "a subjective determination as to whether these results were significant enough to have changed the ED medical clearance of the patient by requiring extended observation, treatment, intervention, further studies, or a change in disposition." (p. 867) The two authors were able to come to a consensus in all cases.
II.	**What are the results?**	
A.	**How likely are the outcomes over time?** *For the defined follow-up period, how likely were subjects to have the outcome of interest.*	Out of 519 cases included, only one (0.2%, 95% CI 0.04 to 0.1%) was identified in which a laboratory abnormality was found that would require any ED intervention or a change in disposition. The single outlying case involved a 46-year old female with a history of bipolar disorder, hypertension, chronic kidney disease, and CHF who complained of suicidal ideation and feeling "manic." On review of systems she noted having "decreasing energy" and "decreased appetite." On physical exam she was noted to have a temperature of 38°C and a pulse of 114 beats/min. She wad admitted to the psychiatry service where she was found to have a potassium level of 2.7 mEq/L, a creatinine level of 2.0 mg/dL, an elevated blood glucose, and an anion gap of 27. She remained on the psychiatry service for 4 days with an inpatient Medicine consult.
B.	**How precise are the estimates of likelihood?** *In other words, what are the confidence intervals for the given outcome likelihoods?*	See above.
III.	**How can I apply the results to patient care?**	

A.	**Were the study patients and their management similar to those in my practice?**	No. This study included patients already admitted to the inpatient psychiatry unit, rather than patients being evaluated in the ED. A broad array of testing was performed routinely on these patients, likely including more lab testing than is typically performed in our ED. Demographic information and the incidence of medical comorbidities is not provided, though these would likely be similar to what we see in our institution. Finally, this study did not include psychiatric patients who are violent or excessively difficult to manage, as these are generally transferred from the ED to an outside psychiatric facility. Such patients remain in the ED at our institution and are admitted to our psychiatry service.
B.	**Was the follow-up sufficiently long?**	Yes. The authors were not evaluating whether testing actually changed management, but rather whether the results of lab testing would have changed management, had the results been available in the ED. Prolonged follow-up was therefore not necessary.
C.	**Can I use the results in the management of patients in my practice?**	Unclear. While this study suggests that the results of routine laboratory testing in patients admitted to an inpatient psychiatric unit are unlikely to alter ED management, differences in the patient population and the subjectivity of the outcome make it difficult to apply these results in our patient population.

Limitations:

1. **Key differences in the patient population in this study limit our ability to apply the results to our patient population (external validity)**
    a. **Patients in the study were already admitted to the inpatient psychiatry unit, and this ED patients were not evaluated.**
    b. **Psychiatric patients who are violent or excessively difficult were not included in this study, as they are typically transferred prior to admission.**
2. **The authors do not provide any information regarding patient demographics or medical comorbidities, or information regarding psychiatric diagnoses.**
3. **The authors do not consider whether any laboratory results would impact**

psychiatric management.

4. The outcome of interest was subjectively defined and identified.

Bottom Line

In this retrospective chart review of lab testing in patients admitted to the inpatient psychiatry unit of the Medical College of Georgia, in only one out of 519 cases (0.2%, 95% CI 0.04 to 0.1%) was a laboratory abnormality found that would require any ED intervention or a change in disposition. While this study suggests that the results of routine laboratory testing in patients admitted to an inpatient psychiatric unit are unlikely to alter ED management, differences in the patient population and the subjectivity of the outcome make it difficult to apply these results in our patient population.